Capability Integration and Development System (CIDS), formerly Requirements Determination

The Army constantly upgrades and changes the way it fights in order to maintain battlefield superiority over all potential adversaries.[1] Determining our future warfighting requirements is the centerpiece of the Army's race to maintain an "overkill" capability in each of its significant functional areas. Maintaining our margin of land warfare dominance is becoming increasingly difficult because technology is growing by leaps and bounds, and there are few, if any limitations on who obtains these technologies. Today any country or organization can acquire extremely sophisticated warfighting capabilities by purchasing them right off the open market. Facing this kind of challenge and the Army's steadily dwindling resources, our modernization decisions must be both well-reasoned and accurate. We cannot afford to guess, and be wrong; today's decisions will determine what our military is capable of 20 years hence. Accurately identifying requirements today may literally be the difference between future victory or defeat.

Links have been inserted throughout the text to enable you to quickly access definitions. It will help if you first click on the View portion of the toolbar, select Toolbars, and then select Web. To access a link or definition, move the cursor over the underlined expression, press and hold the Control key as you click the left mouse button. You will note that a green arrow appears on the far left of the Web toolbar. After you have accessed and read the definition of a term, you may click on the green arrow to return to the exact place in your text from where you accessed the hyperlink. This feature is being incorporated into other readings.

New Terms	Old Terms
Initial Capability Document (ICD) used in milestone A	Mission Need Statement (MNS)
Capability Development Document (CDD) – milestone B	Operations Requirements Document (ORD)
Capability Production Document (CPD) – milestone C	Operations Requirements Document (ORD)
Capstone Requirement Document (CRD)	Architecture Document
DOTMLPF – doctrine, organization, training, materiel, leadership and education, personnel and facilities	DTLOMS – doctrine, training, leader development, organization, materiel, soldiers. This may also be written as DTLOS in some older documents.
JCIDS - joint capabilities integration and development system.	Requirements generation or requirements documents.
Functional Area Analysis (FNA)	Mission Area Analysis (MNA)

Learning Objectives

1. TRADOC Cdr.'s Black Book #3, *Requirements Determination*, dtd Mar 96, Forward by Army Chief of Staff,

1. Name the document for institutionalizing a mission deficiency and describe the process which identifies mission deficiencies.
2. List non-materiel and materiel alternatives for resolving deficiencies.
3. Name the user developed document which further refines the Mission Need Statement (MNS) which is now called an Initial capability document (ICD) and specifies operational performance parameters.
4. Describe the requirements generation process.
5. Describe the roles of the combat developer in the requirements generation process. *(Understand that requirements generation is simply a process of pulling together documentation and is now called JCIDS – joint capabilities integration and development system rather than requirements generation or requirements documents).*
6. Describe the role of an integrated concept team (ICT).
7. List the four steps in the requirements generation system and identify the aspects of the requirements generation system as it applies to acquisition of information technology (e.g., interoperability, architecture, re-use.)

Background

At the end of the Cold War, Headquarters, Department of the Army (HQDA) and TRADOC recognized a need to change its requirements determination process. The threat that had been the centerpiece of the Concept Based Requirements System (CBRS) was gone. More diverse threats emerged from nations with potential for highly robust and technically capable forces. These new threats, reduced resources, and the use of U.S. forces in nontraditional roles, demanded that the Army change from a forward deployed force to a force projection Army. TRADOC formed the battle labs to help refocus the force, experiment with new methods for determining requirements, and to make the requirements and acquisition process more efficient.

The Army of the 21st Century (Army XXI) will be an integral part of a rapidly changing world. New technologies will emerge almost daily to be rapidly proliferated around the globe. The explosive growth of the Internet, Global Positioning System (GPS) navigation, and cellular communications technology demonstrate how new technologies can change the environment in which future combat operations will take place. To achieve Army XXI objectives and to keep and maintain a land combat force that can accomplish the wide array of missions, the new requirements determination process must promote horizontal requirements integration (HRI). HRI is the holistic process of developing future; "total force-oriented" requirements based upon approved concepts and related future operational capabilities (FOCs).

TRADOC's Mission, Vision and Command Priorities

TRADOC Mission: Access the force, train the Army for war, set the Army's standards and requirements, and command assigned activities and installations. Although all missions are important, the first and third missions are where combat developers focus most of their efforts to achieve force modernization.

TRADOC's Vision: To prepare the Army for decisive victory in the full range of joint and coalition operations through:

- Accessing and training the Army's soldiers and leaders and providing disciplined combined arms training environments for units.
- Balanced development of concepts, requirements, and products in Doctrine, Organizations, training, materiel, leadership and education, personnel and facilities OLPF.
- Providing readiness infrastructure for training and projecting Army forces.
- Building a command environment that promotes safe, values-based, and disciplined operations.

TRADOC Command Priorities:

- Remain committed to Army near-term readiness: train the force; .access the force; provide mission support required to train the force.
- Sustain TRADOC's readiness capability to perform our mission: maintain core requirements for the daily business of TRADOC; improve soldier quality of life; maintain and operate installations and facilities.
- Prepare the Army for the future: develop soldiers, leaders, doctrine, materiel, training, and organizations to meet tomorrow's land combat challenge.

TRADOC Domains: Doctrine, Organization, Training, Materiel, Leadership and Education, Personnel, and Facilities (DOTMLPF) requirements. These domains are the means by which TRADOC transforms the Army into a (envisioned) future state. These changes or modifications are adjustments to the Army's doctrine, organizations, training, materiel, leadership and education, personnel and facilities OLPF. The domains can be divided into two distinct groups: non-materiel alternatives (DOTLP) and materiel alternatives (M) which includes facilities. Requirements determination occurs in the order of doctrine, organization, training, leadership and education, personnel, materiel and facilities, based on the expense and timeliness to field a capability. Each domain will be defined later in this chapter. Figure 1-1 shows a partial TRADOC structure.

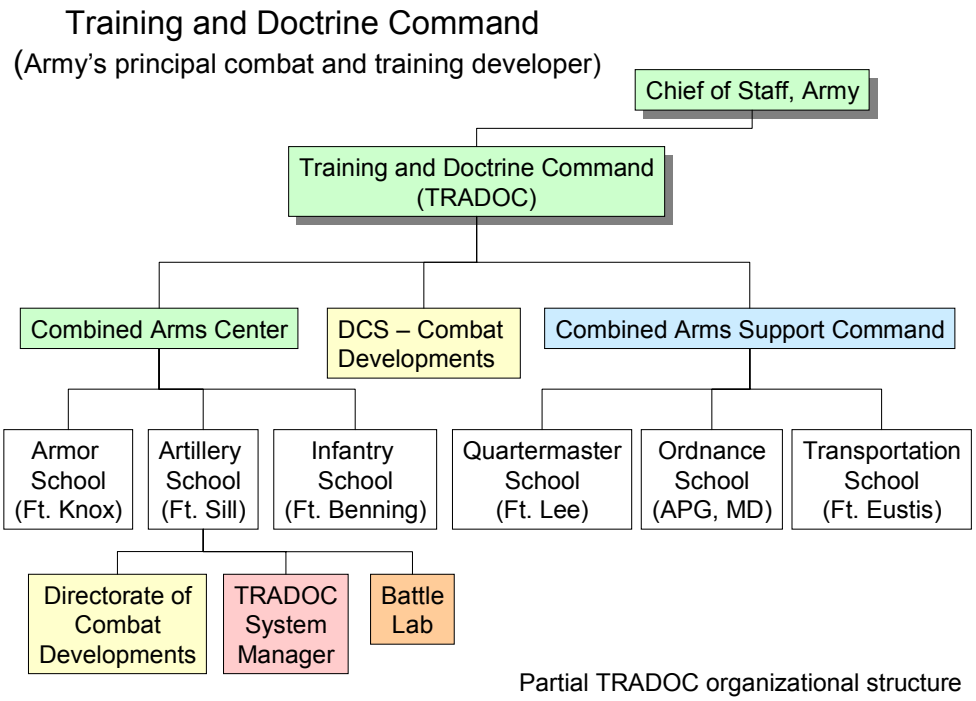

Figure 1-1 Partial TRADOC Organizational Structure

Combat Developer's role, mission and goals

TRADOC serves as the Army's Combat Developer. The Commanding General of TRADOC is the Army's warfighting requirements "gate keeper."

The TRADOC Deputy Chief of Staff for Combat Developments (DCSCD) mission is to formulate the Army's warfighting requirements. DCSD provides policies, and resources to execute the requirements determination process. Our disciplined approach to change is characterized by:

- Developing warfighting concepts and supporting Organization and Operational concepts (O&O);
- Identifying Objective Force Capabilities (OFCs) and Future Operational Capabilities (FOCs); focusing the Army's science and technology effort;
- Rigorous analysis and experimentation; determining warfighting requirements;
- Conducting of periodic reviews to ensure operational requirements remain nested in emerging concepts;
- Assisting Department of the Army in presenting and justifying requirements to the Joint Staff, Office of Secretary of Defense, and Congress.

TRADOC DCSCD Vision: Lead the HQ TRADOC Army transformation effort to ensure the force is strategically responsive and dominant at every point on the spectrum of operations, now and into the future. Efforts will preserve the overmatch ability of the

legacy force (mechanized and light), while simultaneously supporting the transformation process (emerging interim and objective forces).

TRADOC DCSCD Goals: The combat developments community is actively engaged in transforming the Army to meet 21st Century requirements by creating the operational force designs to realize improvements in the warfighting capability and strategic responsiveness in joint operations. Key efforts focus on transforming the operational force to provide full-spectrum capability to better deal with small scale contingencies without risk to the Army's primary role to fight and win major theater wars. Crucial to this effort is development of capabilities for the objective force. DCSCD goals:

- Create operational force Organization and Operational Concepts (O&Os) and designs which meet Army Transformation Campaign Plan (ATCP) objectives for Interim and Objective Force.
- Develop future operational capabilities for the objective force, include collaboration with Army Materiel Command (AMC) and Assistant Secretary of Army (Acquisition, Logistics, and Technology) (ASA (ALT)) to assure that Science and Technology (S&T) programs are focused on priority capabilities.
- Develop and execute experimentation to provide critical insights for O&O and FOC development and subsequent generations of DOTMLPF requirements.
- Develop and defend recapitalization activities to maintain legacy force's combat overmatch; includes collaboration with HQAMC and ASA (ALT) to assure the S&T programs are focused on priority capabilities.
- Develop and defend requirements to meet O&O concepts. Includes a DOTMLPFs integrated resourcing approach.
- Develop and operationalize two Initial Brigade Teams at Fort Lewis, Washington.

Requirements Determination Background

The requirements determination process was studied by the Army in 1995 Table of Distribution and Allowances (TDA) Army Functional Area Assessment (FAA). The principal output of this assessment was a revised process endorsed by the Chief of Staff of the Army (CSA) and CG, TRADOC. Significant aspects to this new process are:

- A holistic approach to requirements determination for future military force structure. The Army evaluates new threats against the full spectrum of its equipment and missions. Previously, the Army evaluated a new threat against a single system or mission.

- Focus on requirements as a change to any DOTMLPF domain, with materiel being the least desirable domain to change because of acquisition costs and schedules. Previously, materiel was the primary domain for developing requirements.

- Requirement of a multidisciplinary team effort. Previously, combat developers developed requirements with minimal input from the other DOTMLPF agents. In other words, they operated in a vacuum and did not discuss and coordinate their requirements with the folks who write doctrine, develop the organizational structure of Army, develop training plans, the materiel developers, the writers of leadership doctrine and education, or those who develop personnel requirements.

- Cost as an independent variable (CAIV) to ensure the preferred solution will include an affordable life cycle cost. The Army can no longer expect performance at any cost or being able to purchase anything it wants. CAIV analysis will not preclude the Army from purchasing a new system containing leap-ahead technology. Any "leap-ahead" or leading edge technology incorporated into an Army system must provide us a significant capability increase in order to justify its expense.

- Assignment of CG, TRADOC as the single approval agent for all warfighting requirements. It is also, a requirement for all Army commands and the Army staff to follow CG, TRADOC established procedures for determining and documenting requirements. Approval is no longer split between and within HQDA and Army proponent commands (e. g., TRADOC, MACOMs (Major Army Commands), and separate commands). Different procedures and approval authorities previously applied to all DOTMLPF areas. For example, within materiel, separate procedures and approvals existed for clothing and individual equipment (CIE); non-system training aids, devices, simulations, and simulators (TADSS); information systems; Acquisition Category (ACAT) I and II materiel programs; and ACAT III and IV materiel programs. Recent changes in DOD 5000 series, AR 70-1, AR 71-9, and AR 25-1 series emphasize one process for all materiel programs.

As result of the Federal Acquisition Streamlining Act of 1994, Congress stated a preference for using commercial and nondevelopmental items to satisfy new requirements. Part of the implementing guidance in the law states that requirements must be modified in appropriate cases to ensure that the requirements can be met by commercial or nondevelopmental items. The new law was codified into the Federal Acquisition Regulation (FAR) Parts 10 and 11, to recognize the need to conduct market research prior to finalizing requirements in the operational requirements document (ORD). The FAR states, "Acquisitions begin with a description of the Government's needs stated in terms sufficient to allow conduct of market research." The changes in the law and the implementing guidance in the revised FAR is affecting how the Army's materiel requirements determination process is conducted. Combat Developers (CBTDEVs) spend much of their time and effort shaping the future Army. Proponents first determine the current level of ability (unit, functional area, branch, etc), then identify the desired level of ability that will be needed in the future, and finally make whatever changes in method, organization or equipment is required to achieve it. When it is determined that a materiel solution is needed the combat developer works to produce the requirements documents needed for producing a material system. The combat developer works with the soldier in the field to come up with desired requirements for a new system or for improvements on an old system. The combat developer investigates to see if these

are feasible and submits these to the design engineers. Eventually the combat developer will write the ORD/CDD for this system and will be responsible for keeping the ORD/CDD updated. Figure 1-2 shows the requirements determination process.

New Method of Doing Requirements Business: An Overview

Requirements Determination Process. The Army continually upgrades and changes the way it fights so it can maintain battlefield superiority over all potential adversaries and can achieve complementary capabilities with other Services and nations determined holistically, based on desired joint and Army capabilities versus known deficiencies. Requirements are driven by concepts focused on the future and on experimentation in our battle labs.

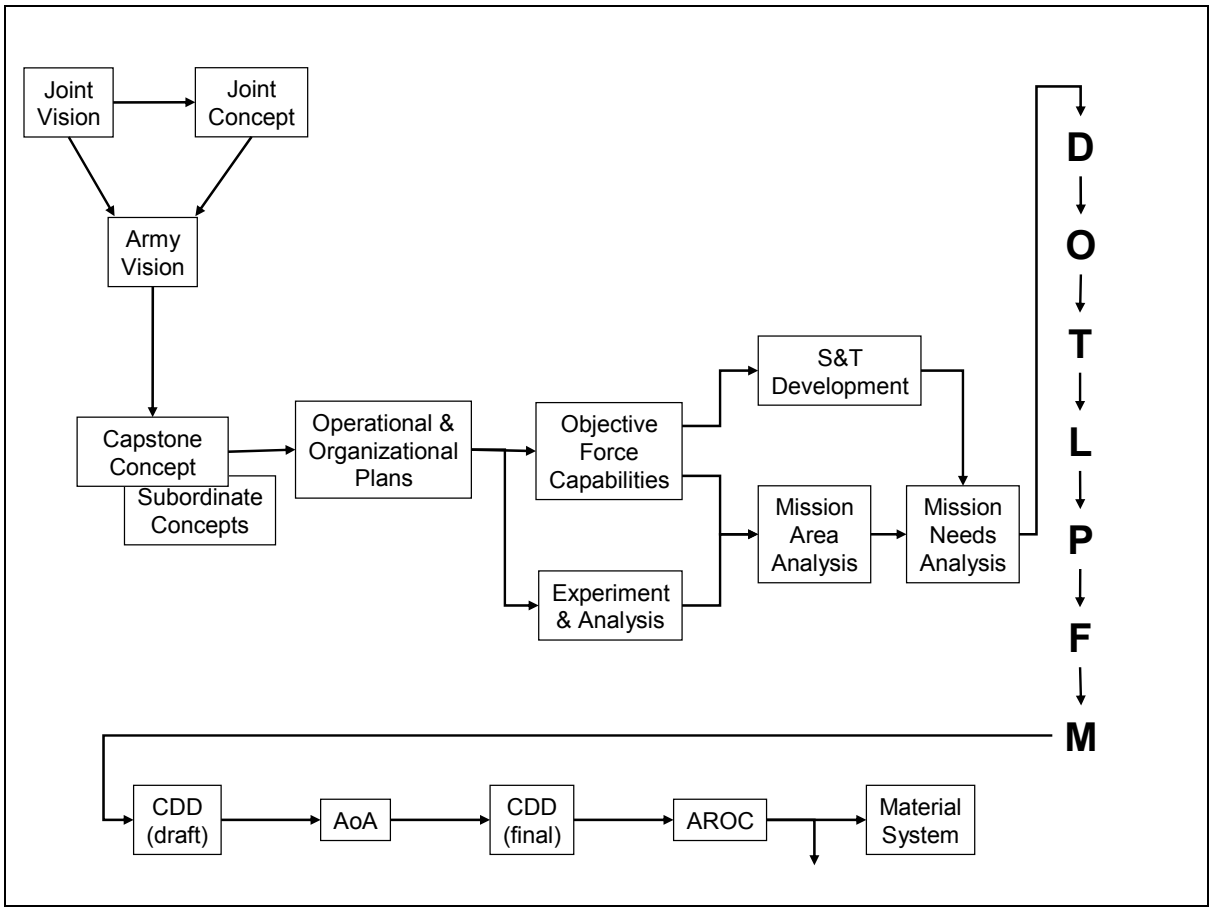

Figure 1-2. Requirements Determination Process

Army Warfighting Vision. The TRADOC CDR, at the direction of the Chief of Staff, U.S. Army (CSA) develops the Army's objective force concept. It is an abstract description of a desired goal and it integrates the Joint Vision and Army requirements to accomplish the Army's role in that vision. It is influenced by national security and military strategies, with science and technology (S&T) providing the frame of reference. These objective force capabilities are structured statements of operational capability required by the transformed Army to achieve force level goals. TRADOC Pam 525-66

gives details pertaining to these capabilities and is the control mechanism for requirements determination activities. It provides a cross-reference for all Army operational capabilities to ensure they adequately focus S&T, as well as applied industry research and development (R&D) initiatives. These are covered in chapter 7 of TRADOC PAM 71-9.

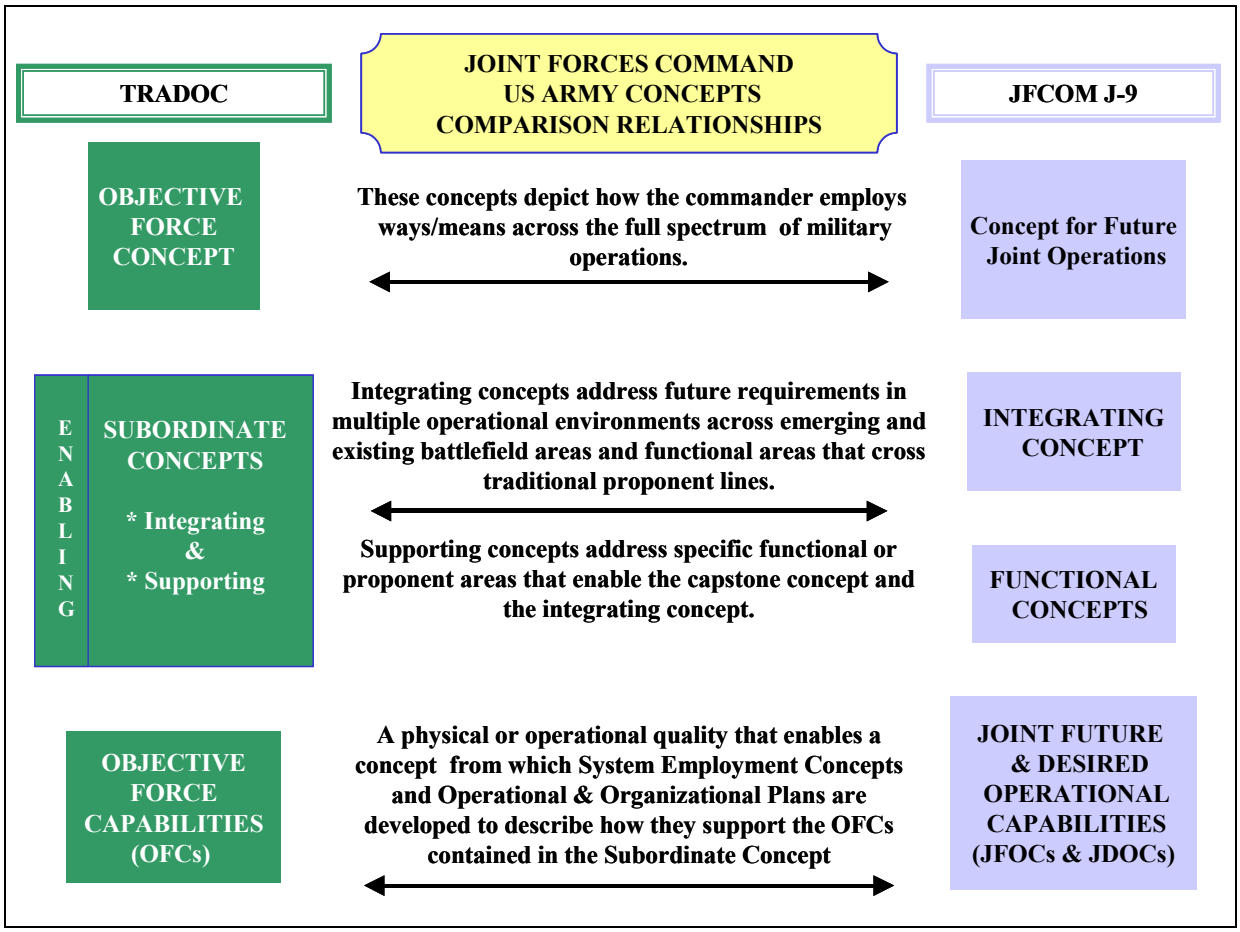

Figure 1-3. TRADOC and JFCOM Concept Relationship

Joint Vision. Figure 1-3 above shows the TRADOC and Joint Forces Command relationship comparison. The process begins when the Chairman of the Joint Chiefs of Staff (CJCS) issues a Joint Vision that provides a conceptual overview of their armed forces in the future. The Joint Vision establishes the initial conceptual template for how the forces will channel the vitality of their people and leverage their technological opportunities to achieve new levels of effectiveness in joint warfighting.

Joint Concept. The Concept for Future Joint Operations (CFJO) serves as the joint concept document. The CFJO is a rudimentary, abstract description of a desired goal as seen by the CJCS, as he looks at the future battlefield. The CFJO expands the Joint Vision's new concepts to provide a more detailed foundation for follow-on capabilities assessments. The CFJO also represents an important step toward the objective of achieving the right capabilities for the challenges the armed forces will face in the 21st century. America's armed forces must be able to shape the strategic environment to

prevent war, respond when deterrence fails, and begin now to prepare for an uncertain and challenging future. Toward these ends, the CFJO considers future joint operations in the context of the broad range of challenges anticipated. It also helps concept developers identify Joint Desired Operational Capabilities (JDOCs) and Joint Future Operational Capabilities (JFOCs) which will drive development of better and faster processes for evaluating and adapting emerging warfighting capabilities.

U.S., Joint Forces Command (JFCOM) Concepts. The Secretary of Defense, in the Joint Warfighting Experimentation Charter, directed the Commander, JFCOM to develop concepts that will provide Joint Staff guidance to the military. The JFCOM staff has initiated the development of concepts that provide a more detailed view of the CFJO. JFCOM is working through the creation of two categories of subordinate concepts: integrating and supporting. Both JDOCs and JFOCs are derived from these concepts. JDOCs identify desired goals to be achieved. The relationship between JFCOM Concepts and TRADOC Army Concepts is shown in Figure 1-2.

Army Capstone Concept. An Integrated Concept Team (ICT) (see chap 4 of TP-71-9) is formed at HQ TRADOC to develop the capstone concept (see chap 5 of TP 71-9). The ICT is made up of members from TRADOC, U.S. Army Materiel Command (AMC), other Army commands, JFCOM, HQDA, other military Services, academia, industry, and others—taking advantage of the synergy of the group to translate the commander's vision into the next level of detail. The capstone concept reflects direct linkage to the National Military Strategy (NMS), Defense Planning Guidance (DPG), the Joint Vision, the Army Plan, and other documents. In this context, the capstone concept (TP 525-5) becomes the primary guide for all other Army concept development activities.

Army Subordinate Concepts. Because the Capstone Concept provides a macro-level description of the future Army, it must be enabled by the development of more detailed subordinate concepts, called integrating and subordinate concepts. Integrating concepts can address requirements in multiple operational environments. Examples of this are Light, Medium and Heavy Forces. Supporting concepts amplify a specific function (e.g., Theater Missile Defense and Homeland Defense) or describe how to employ a system or conduct a task. The ICT approach is now used by Army school commandants and other Army leaders to develop the integrating and supporting concepts. These concepts describe the full range of future capabilities needed by the Army to execute the capstone concept and the CFJO.

Objective Force Capabilities (OFCs). OFCs are structured statements of operational capability required by the Army to achieve its force level goals as outlined in the Army Capstone Concept, and applicable force level enabling subordinate concepts. TRADOC Pam 525-66 is a compendium of the force level OFCs, and is the control mechanism for requirements determination activities. It provides a cross-reference, for all Army operational capabilities to ensure they adequately focus S&T, as well as applied industry R&D initiatives. OFCs form the foundation of the Army strategy for experimentation and analysis within the supporting technology base.

Assessments. Assessments supported by warfighting experimentation and simulation, in combination with studies and analysis are key to the requirements determination process. When properly planned and executed, warfighting experiments and analyses give the Army an unsurpassed means to understand future warfighting requirements. Progressive and iterative mixes of constructive, virtual, and live experiments, combined with operational experience and appropriate analyses, yield insights to better define not only concepts, but also requirements across the spectrum of DOTMLPF. Developmental and operational testing may also support requirements determination assessments.

Operational and organizational plan. An O&O Plan, when needed is a document developed under the parent capstone concept or subordinate concept. Concepts are the central driving force behind materiel requirements generation. When the approved concepts (capstone or subordinate) do not provide enough detail for a specific analysis or review, O&O plans are developed to provide that detail. An O&O is a plan of how the proponent wants to proceed. It identifies the more detailed operational environment, operational missions, and capabilities planned to be carried out in a full military role. The O&O plan says what is going to happen and who is going to do it. If more definition is required at the system level, a system O&O plan is produced. This O&O plan gives special consideration to the interaction of the DOTMLPF. The O&O is a product of the ICT.

Doctrine, organization, training, materiel, leader development, personnel, and facilities, (DOTMLPF) requirements. Requirements determination occurs in the order of doctrine, organization, training, leadership and education, personnel, materiel and facilities (D-O-T-L-P-M-F), based on expense and timeliness to field a capability.

- **Doctrine**. A doctrinal modification involves changes or additions to the principles used to guide the employment of operational forces. These principles range from a multitude of tactics, techniques and procedures (TTP) to the Army's capstone document, FM 3-0, *Operations*. School combat developments directorates are responsible for preparing doctrine requirements and forwarding them to HQ, TRADOC for approval.

- **Training & Leadership and Education**. A training modification involves changes or additions to any of the Army's training or professional development programs. These range from institutional training conducted at TRADOC schools to individual self-development and unit training programs conducted in the field [Army]. School training and doctrine directorates are also responsible for preparing training requirements and forwarding them to HQ TRADOC for approval. Leader development solutions can change the way in which leaders are being educated or trained. Alternatively, they could lead to a change in the kind of people we access into the Army.

- **Organization**. An organizational modification involves changes or additions to any of the Army's tables of organization and equipment (TOE). These range from modifying the numbers or types of equipment in a current organization to

documenting an entirely new organization. From just altering the quantity of people and equipment authorized in a unit, to developing an entirely new unit design. School combat development directorates and other combat development organizations are responsible for preparing organization requirements and then forwarding them to HQ TRADOC for approval. The TRADOC DCSCD reviews, integrates and prioritizes action. A list of approved TOEs is maintained in the Structure and Manpower Allocation System (SAMAS) Army Master Force (MFORCE) and are resourced based on overall Army Force Package needs.

- **Personnel**. TRADOC POC for soldier requirements is Leader Development Division, Individual Training Directorate, DCST, HQ TRADOC (ATTG-IL). Detailed soldier requirements guidance is in ARs 600-3 and 611-1. Soldier requirements include additions, deletions, or modifications to the Army's MOCS system. These range from proposals affecting the force and/or grade structure of existing occupational specialties to the creation of entirely new occupational specialties to accomplish assigned missions. Personnel proponency offices are responsible for preparing these soldier requirements, assuring their compatibility with other domains. The POC for personnel requirements is the D7.

- **Materiel**. A materiel solution will be considered only when non-materiel (DOTLP) answers cannot satisfy the identified need. Once a materiel solution is identified as the solution to a specific need, the combat developer initiates actions which (if successful) will lead to the fielding of a materiel system.

The combat developer formally enters the acquisition process with the initiation of the Mission Need Statement (MNS), (now called an ICD). If a MNS is not required, the initial document will be an Operational Requirement Document (ORD) (now called a CDD). The MNS represents a formal request to begin defining requirements and exploring different technology concepts. The ORD details the results of that process in the form of detailed requirements leading to technically achievable systems. The ORD is published by the user and further refines the MNS.

Figure 1-4 outlines the acquisition process. The point at which a program enters into the acquisition process and the extent the process is tailored depends on the thoroughness of the combat developer's pre-Milestone A activities and the maturity of the technology.

In pursuing a materiel system, the most cost-effective solution over the system's life cycle will have priority consideration.

Requirements Generation System. By analyzing their mission, users identify deficiencies in their operations as well as opportunities for greater efficiency. The requirements generation system is the process used to translate analysis of identified deficiencies into requirements forming the basis of all acquisition programs. The requirements generation system is "owned" and operated by the users of the developed systems/warfighters. The requirements generation system has four separate phases: definition, documentation, validation and approval.

Definition Phase. This phase defines, describes and justifies a mission need that will satisfy a deficiency in the user's capability or exploit a technological opportunity. This phase has two fundamental steps: the mission area analysis (MAA) and the examination of solutions to any deficiency identified in the MAA.

- Mission Area. A mission area is a segment of the defense mission as established by the Secretary of Defense. Each DOD component has mission areas (e.g., Navy-antisubmarine warfare, Army-ground combat) for which it must equip its forces.
- Mission Area Analysis. (MAA). MAA is the process by which warfighting deficiencies are determined, technological opportunities for increased system effectiveness and /or cost reduction are assessed, and mission needs are identified.
- Solution to Deficiency. Mission needs identified in the MAA are examined to determine if they can be satisfied through non-materiel solutions such as changes in doctrine, tactics, training, or organization. If this is not feasible, then materiel solutions may be considered and the need will be documented in a mission need statement (MNS). A non-materiel solution is preferred over the materiel solution, since it is usually less expensive, and can usually be implemented in less time. Once it has been identified that a materiel solution is required to satisfy the user's need, then that need must be documented using the next phase of the requirements generation system, the documentation phase.
- Threat versus Capability. By comparing the projected threats with current and projected military capability, users identify mission deficiencies or needs.
- Future threats. Future threats are the sum of the potential strengths, capabilities, and strategic objectives of any adversary that limit or negate U.S. mission accomplishment or reduce force, system, or equipment effectiveness. *Examples* of threats we face today are: terrorism, ethnic/religious conflicts, rogue nations, narcotics traffic military operations in urban terrain, information warfare, and technology transfer.
- Current and Projected Capabilities. Current and projected capabilities are the ability of the user's forces today and in the future to accomplish the mission. *Examples* include: F-22 Advanced Tactical Fighter, MV-22-Osprey Joint Advanced Tactical Airlift, Joint Strike Fighter, High Speed Sealift–Theater Support Vessel (TSV).
- Opportunities for Change. By looking at emerging technologies, changes in policy, or ways to reduce cost, users can identify ways of performing the mission more efficiently or effectively.
- Advanced Technology. Advanced technology results from advancements in science, technology, and engineering that provide breakthrough opportunities for future systems. *Examples* include: stealth materials and techniques, advanced sensor materials, information processing architectures, high strength materials.
- Policy Changes. Policy changes are top-level redirection on how the user's forces are to be employed. *Examples* include: drug interdiction, peacekeeping operations such as Haiti and Bosnia, adoption of the strategic arms reduction treaties (START).

- Cost Reduction Opportunities. Cost reduction opportunities are strategies that will significantly reduce the cost of operations or ownership of a fielded system. *Examples* are: Modernizing the engine of the KC-135, MINUETMAN III GRP-guidance replacement program, converting the HEMMT cargo trucks into the HEMMT-LHS (load handling system).
- Deficiencies or Opportunities. A deficiency or opportunity is a result of an MAA which revealed that a new way of accomplishing the mission was needed or possible.
- Possible solutions to deficiencies. Once a warfighting deficiency or technology is identified, the following question needs to be asked: is this deficiency or opportunity within the user's capability to address by making changes in training, organization, tactics, or doctrine? If the answer is **yes**, the user can solve the problem by changes in training, organization, tactics or doctrine, then a non-materiel solution has been found. If the answer is **no**, the problem cannot be solved through a non-materiel solution, then a materiel solution is needed and the acquisition world gets involved. Here is where the documentation phase begins

Documentation Phase. Once it has been decided that a materiel solution is required to satisfy the need, it must be documented. The documentation phase of the requirements generation system involves the formal preparation and initial review of the mission need statement (MNS). The MNS is prepared by the user to document an operational deficiency or technological opportunity that requires a materiel solution. The MNS: is generic, not system specific; describes the need in broad operational terms; is limited to five pages; for ACAT I programs, shall identify linkage to the DOD Strategic Plan; and is prepared and staffed in accordance with CJCSI 3170.01.

- Materiel Requirements Documents. Materiel requirements documents (MRDs) are prepared by the combat developers and serve to document any warfighting materiel requirements, as stated by the combat developer. MRD's bridge the gap between a deficiency or a need, and the contractual instruments used to develop and acquire materiel systems. (You will learn about the contracting process later in this course).Training developers are required to work closely with the combat developers to identify and properly document training requirements within the MRDs and initiate training plans.

Validation Phase. Validation is a formal review of the requirements document by an operational authority other than the user. At a minimum, the validation authority will: confirm the existence of an identified need and operational requirement; verify that non-materiel solutions are not feasible; assess joint service potential and verify interoperability requirement.

- Validation Authority. The person who validates the mission need depends on the Acquisition Category (ACAT) and the service or agency involved. For ACAT 1 programs authority goes to the Joint Requirements Oversight Council (JROC). The JROC validates all requirements documents if the materiel solution could result in an ACAT 1 (D or C) program.

- Validation for ACAT 1 (M or C). If the materiel solution could result in a new ACAT 1A (M or C) automated information systems (AIS), then the JROC will evaluate the program to determine if JROC oversight is appropriate or desired and validates the requirement as needed. If it is determined that JROC oversight is not appropriate or desired, the appropriate Principal; Staff Assistant (PSA) validates the requirement.
- OSD Principal Staff Assistants (PSAs). PSAs are the heads of OSD organizations who report directly to the Secretary of Defense or the Deputy Secretary of Defense. PSAs represent the user community in the functional area under their direction on acquisition and requirements matters.
- Validation for ACAT II and III Programs. The table below identifies who is responsible within each service for validating the requirement these programs.

Service	Validation Authority
Army	Chief of Staff
Navy	Chief of Naval Operations
Air Force	Chief of Staff
Marine Corps	Commandant of the Marine Corps
Other DOD Agencies	DOD Agencies have similar processes

Approval Phase. Approval is the formal or official sanction of the identified needs described in the requirements document. The approval authority for all potential ACAT 1 Mission Needs Statements (MNS) is the JROC. For a potential ACAT 1A MNS the authority is the PSA or JROC. For potential ACAT II or III MNS, the service chief or designated authority is also the approval authority. After the authority approves the MNS, it comes to the acquisition community for a review to consider value and affordability factors. The MNS will ultimately lead to development of an Operational Requirements Document (ORD). Figure 1-4 below shows the process that starts after the MNS is sent to the acquisition community for review. These will be explained in detail in a later class in this course.

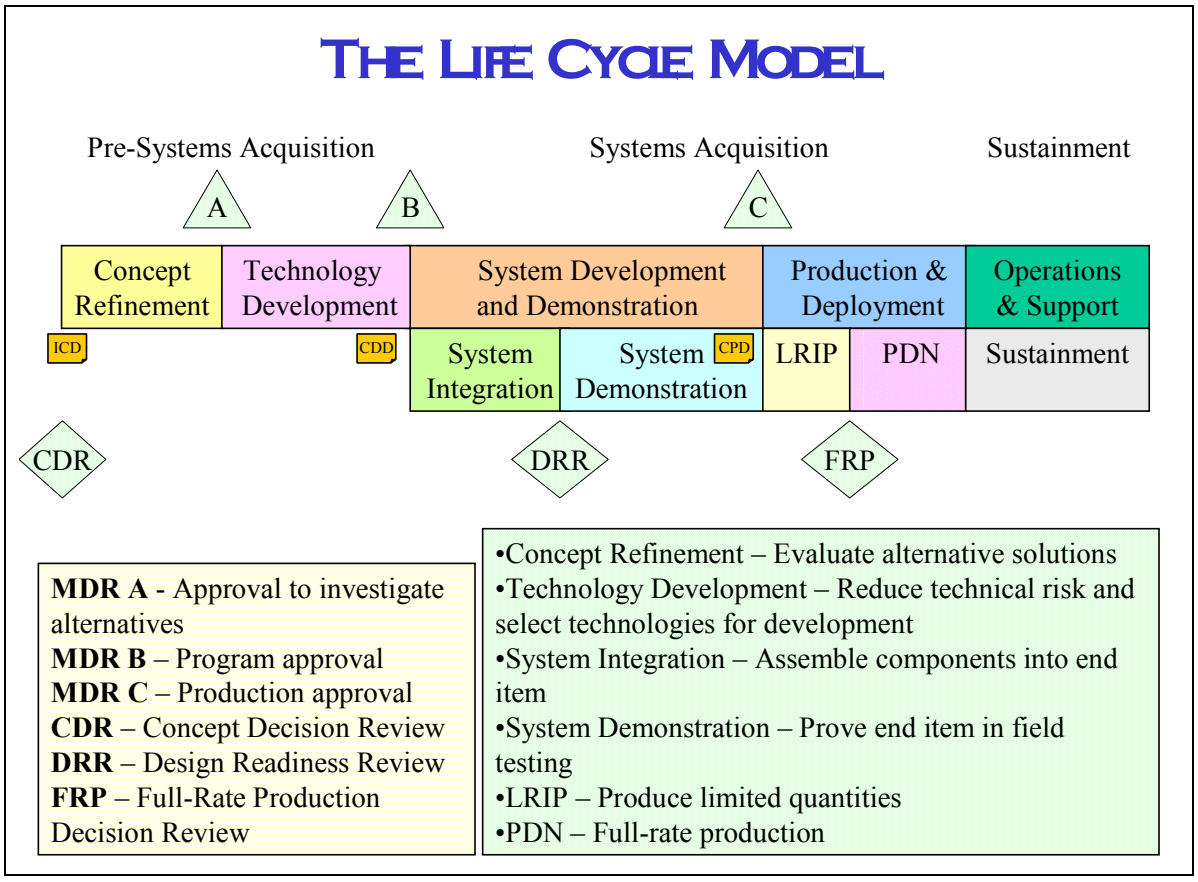

Figure 1-4

Integrated Concept Teams. The core body for the initiation and development of materiel requirements is the ICT. The ICT management philosophy employs the team approach to requirements determination actions. ICTs maximize the efforts of reduced resources by early resolution of issues through timely involvement of appropriate agencies/expertise as a team with a commitment to aggressively identify and work issues. In its role as architect of the future, TRADOC employs these multi-disciplinary ICTs representing appropriate MACOMs and staffs, appropriate DoD organizations, and other federal agencies. Industry and academia may participate on a limited basis. ICTs are the primary means for horizontal integration in the DOTMLPF requirements determination process. A single ICT may identify the need for several different DOTMLPF requirements to support a warfighting capability that crosses multiple branches or enduring battlefield functions. A primary goal of the ICT process is to shorten the requirements determination event of the acquisition process.

Fundamental characteristics of ICTs:

- Have a clear agenda, schedule, and deliverables
- Are multi-disciplinary.
- Have members who are empowered to make decisions.
- Have a holistic, total force perspective.

- Seek DOTMLPF solution sets.
- Consider both conventional and innovative concepts and solutions.
- Consider near, mid, and long term capabilities and opportunities.
- Can be tier one or tier two. HQ TRADOC charters Tier 1 ICTs.
- Promote horizontal requirements integration/horizontal technology integration HRI / HTI

ICTs are formed to:

- Develop capstone and subordinate TRADOC Pam 525-series concepts and associated OFCs.
- Develop new and validate current OFCs published in TRADOC Pam 525-66.
- Determine and document warfighting mission needs analysis across all DOTMLPF domains.

Integrated Concept Team (ICT) establishment and general guidelines

Initiation - ICTs will be initiated by the TRADOC CG, Deputy Commanding Generals (DCGs), DCSs, or School Commandants/Center Commanders. The individual initiating the ICT must make a determination whether to establish a tier one or tier two ICT.

Tier one

Scope - Tier one ICTs are established to develop, concepts, and the resulting requirements documentation when there are multiple proponents or proponency has yet to be determined (TBD). HQ TRADOC may direct the establishment of a Tier one ICT and designate the Tier one lead. Tier one ICTs have high management interest and visibility (HQDA, OSD, or Congress); major joint Service impact; or require HQ TRADOC delegated authority and command level resources if appropriate, to conduct The ICT. These ICTs are approved and chartered by HQ TRADOC.

Proposal - A Tier one ICT proposal is not required if the ICT is directed by HQ TRADOC. Proponent Recommended Tier 1 ICTs are initiated by submitting an ICT proposal to the appropriate HQ TRADOC functional directorate. This allows for expeditious coordination of the emerging ICT at the idea stage before major command resources are expended. An E-mail submission is acceptable. The appropriate HQ TRADOC functional directorate reviews the proposal for potential integration with other ICTs and with other TRADOC requirements determination efforts. A proposal response, with a suggested core membership list and appropriate directions, is usually provided back to the originator. (The response normally requires that the originator develop and submit a charter to the HQ TRADOC functional directorate for CofS, TRADOC approval). However, if other factors are involved (e.g., redundancy, change of scope, joint Service implications, major command resource commitments), the HQ TRADOC functional directorate conducts the necessary coordination (internal and external) prior to a final decision on the ICT's scope and lead. Following this coordination, appropriate

instructions, including a designation of the ICT lead, are forwarded back to the originator and other impacted organizations. Under these circumstances, the lead for the ICT may be an organization other than the originator of the proposal.

Tier Two

These ICTs are used to develop or refine a concept unique to a single proponent or determine and document branch or function unique mission needs and requirements. Tier 2 ICTs are usually established and conducted under the guidance of school Cmdts or center CDRs but may be directed by HQ, TRADOC. Tier 2 ICTs initiated by a proponent designate the ICT lead and charter the ICT. Proponent initiated ICT leads will notify the appropriate HQ TRADOC functional directorate via E-mail and provides at least the following information: ICT name, originator, deliverables and/or products, estimated completion date, participating organizations, and POC name and contact information. HQ TRADOC posts this information on the DCSDOC Homepage.

The Joint/Army Concepts Directorate (ATDO-C) is responsible for the final review and processing of the ICT charter through the DCSDOC to CofS TRADOC.

ICT Membership - There are two groups of ICT membership - the Core membership and the Staffing membership. The Core membership has the primary responsibility for developing and coordinating the product, working the resolution of issues, and submission of the product for approval. Dedicated Core ICT members serve as the ICT's nucleus, accomplishing most of the planning and work. On-call Core ICT members provide input to the product and assists in resolution of issues within their specialized expertise or provides experimental, analytical, operational, and technological advice and support to the dedicated Core team. Staffing ICT members review the draft product and submit their issues and comments. Resolution of issues to the satisfaction of the Staffing ICT member constitutes concurrence by that member's organization. Unresolved issues from either the Core or Staffing ICT members constitute a non-concurrence by that member's organization and are addressed and resolved during the approval process. ICT membership and participants vary, depending on the specific product being produced (see app B in TP 71-9 for more information). The ICT charter identifies membership and participating organizations. While industry and academia are not members of the ICT, their input is a key ingredient to the process. Techniques to obtain industry and academia input must be executed properly to avoid significant consequences for government, academia, and industry participants. ICT leaders must seek advice and assistance from their legal and contracting offices during the early ICT strategy planning stage and continually during the ICT process

ICT process

Charter. The ICT lead drafts and coordinates the charter with all Core ICT member organizations. The ICT charter addresses, with sufficient detail for ICT planning and resource decisions, the same areas included in the ICT proposal. For Tier one ICTs, the final draft charter is forwarded to the HQ TRADOC functional directorate for review and

approval by the TRADOC CofS. The ICT charter must have enough to allow HQ TRADOC to prioritize ICT support resources (e.g., analysis, Battle Lab experimentation and the TRADOC Installation Contract) and coordinate with other requirements determination efforts. For Tier two ICTs, a copy of the CDR/Cmdt approved charter is forwarded to the HQ TRADOC functional directorate. Resourcing for Tier two ICTs is the responsibility of the proponent and membership as re-occurring missions delineated within the yearly TRADOC Installation Contract An example of an ICT funding spreadsheet will be provided by the HQ TRADOC functional directorate. Concepts and DOTMLPF Mission Needs Reports from Tier two ICTs are approved by the chartering CDR.

Read-ahead for Core ICT. The ICT lead develops and provides a read-ahead package to the Core ICT member organizations. Packages include background information; strawman ICT action plan with milestone schedule, issues and opportunities, and emerging tasking and support responsibilities; and, when applicable, strawman materiel requirements documents with initial drafts of the operational mode summary/mission profile (OMS/MP) and the system training plan (STRAP). These strawman documents are not expected to be complete, ready to coordinate documents, but rather are to be first-cut documents that require input from Core ICT members. The forwarding memorandum for the read-ahead includes a request for designation of an individual to serve as an ICT Core member. The individual is empowered to actively participate in the ICT, provide advice and input to the product, identify issues, and represent their organization on any issues, opportunities, or tasking identified in the Action Plan. The Action Plan must address how an assessment of industry and academia technology capabilities will be obtained by the ICT.

Convene the Core ICT. The Core ICT may be convened by any appropriate mechanism (e.g., exchange of papers/electronic media, video teleconference, telephonic conference(s), or meeting). The Core ICT includes both dedicated and on-call members On-call members provide their input to the product but are not required for full participation (e.g., a Battle Lab may be required early to identify the need for experimentation and later to explain experiment results). The mission of the Core ICT is to produce the ICT product for coordination and assist the ICT Chair in resolution of comments and issues received during staffing. The first order of business is to finalize the ICT Action Plan including supporting analysis, experimentation, resources, and tasking/responsibilities essential to develop ICT products and deliverables. A critical element of the ICT planning and operations is establishing appropriate linkages with related ongoing ICTs and other affected or supporting organizations. The second order of business is to implement and execute the Action Plan.

ICT products. The full ICT membership may produce the following products:

- Concepts - A Tier one ICT produces both the draft concept (capstone or subordinate) for coordination and the final concept for submission to HQ TRADOC for approval. The ICT also publishes minutes that describe the

resolution and disposition of each issue, identify supporting information that cannot be provided in the product, and convey any issue for further study.

- Mission Needs Analysis. The ICT produces a MNA for approval by the authority that chartered the ICT.

- Materiel Requirements Documents (MRDs). The ICT produces the MNS, CRD, and ORD. The ICT develops the coordination draft and final draft MRDs. It also publishes minutes that provide an audit trail describing the resolution and disposition of each issue and identifying any areas needing further study for resolution and/or attention of MATDEV IPT (s), (e.g., MANPRINT issues). Development of MRDs will require a system training plan (STRAP).

- SSP. The ICT produces the initial plan for management and use of simulations in support of a materiel system and to support the goals of Simulation and Modeling for Acquisition, Requirements and Training (SMART) goals. The plan addresses M&S use for assessment of sustainment issues, testing, and training for materiel development purposes. The SSP is a dynamic plan, which will change as the concept matures and will eventually transition to a program manager. The intent of an SSP and SMART is to facilitate the use of M&S standards, to promote the reuse of software when feasible, and to provide a collaborative environment to reduce the time and cost of materiel system development through efficient and effective use of M&S.

Full review of ICT product. Key to the success of the ICT process is the early identification and resolution of issues. While the Core ICT works numerous issues during preparation of the draft, staffing responses that specifically identify issues and provide comments are critical to quickly producing an adequate and supported document. Issues reflect an area of non-concurrence if not resolved to mutual satisfaction of affected ICT members. Unresolved issues become decision issues for the document approval authority. Comments reflect suggestions for consideration by responsible ICT members. Staffing ICT member organizations will identify the individual empowered to represent their organization during issue resolution.

Resolution of issues identified. Issues will be resolved within the ICT, when possible. Core ICT members review the issues identified from staffing. An issue that cannot be resolved in the ICT, will be presented immediately to director or to general officer (GO) levels within affected member organization for resolution. Any issues not resolved will be submitted with the ICT product to HQ TRADOC (or, when applicable, to the chartering Cdr/Cmdt) for decision during the final approval. Senior leadership will be briefed, as necessary, to build support for results and products.

Forward ICT product to HQ TRADOC, ATTN: appropriate deputy chief of staff(s) (DCS(s)) (i.e., DCSDOC for doctrine products/actions; DSCT for training, leader development, and soldier products/actions; or DCSCD for concepts, organization, and materiel products/actions, as applicable) for action or decision.

Publish and forward to ICT members and HQ TRADOC functional directorate(s) final ICT minutes that show the status, resolution, and disposition of each issue raised during the ICT. Specifically identify any issues beyond the scope of the ICT requiring work of the combat developer, training developer, doctrine developer, force developer, and/or materiel developer.

Transition any follow-on ICT-related efforts to responsible organizations for execution.

Dissolve ICT or transition to an appropriate follow-on ICT or AMC/PEO IPT.

Coordination. HQ TRADOC functional directorates will coordinate individual ICTs with other ongoing TRADOC ICTs. Once an ICT is completed, these directorates will coordinate the results with other requirements determination and concept development efforts.

DCSDOC Homepage (http://www.tradoc.army.mil/dcsdoc). A listing of all ongoing ICTs is maintained on the DCSDOC homepage. The DCSDOC directorates are responsible for reporting updates to ICT information to the DCSDOC homepage POC when serving as functional directorates during the development of MRDs.

Review Questions:

1. Name two of the six non-materiel alternatives for resolving deficiencies. (Answer)
2. What is the role of the combat developer? (Answer)
3. When does the Combat Developer enter the acquisition process? (Answer)
4. Who initiates an ICT? (Answer)
5. What is the user developed document that further refines the mission needs statement? ICT? (Answer)
6. What are some of the roles of a combat developer in the requirements generation process? (Answer)

Appendix A

References

Section I
Required Publications

AR 5-5 - Army Studies and Analyses
AR 5-11 - Management of Army Models and Simulations
AR 70-1 - Army Acquisition Policy
AR 70-75 - Survivability of Army Personnel and Materiel
AR 71-9 - Materiel Requirements
AR 71-11 - Total Army Analysis (TAA)
AR 71-32 - Force Development and Documentation—Consolidated Policies
AR 73-1 - Test and Evaluation Policy
AR 200-1 - Environmental Protection and Enhancement
AR 200-2 - Environmental Effects of Army Actions
AR 350-10 - Management of Army Individual Training Requirements and Resources
AR 350-38 - Training Device Policies and Management
AR 381-11 - Threat Support to U.S. Army Force, Combat, and Materiel Development
AR 385-16 - System Safety Engineering and Management
AR 600-3 - The Army Personnel Proponent System
AR 611-1 - Military Occupational Classification Structure Development and Implementation
CJCSI 3170.01 - Requirements Generation System
CJCSI 6212.01A - Compatibility, Interoperability, and Integration of Command, Control, Communications, Computers, and Intelligence Systems
DA Pam 70-3 - Army Acquisition Procedures
DA Pam 350-58 - Leader Development for America's Army
DODD 5000.1 - Defense Acquisition
DOD Reg 5000.2-R - Mandatory Procedures for Major Defense Acquisition Programs (MDAPs) and Major Automated Information System (MAIS) Acquisition Programs
TRADOC Pam 11-8 - Studies and Analysis Handbook
TRADOC Pam 350-70-8 - Total Army School System (TASS) Training Requirements Analysis System (TRAS)
TRADOC Pam 525-5 - Force XXI Operations
TRADOC Pam 525-66 - Future Operational Capability
TRADOC Reg 5-3 - U.S. Army Training and Doctrine Command (TRADOC) Study Program
TRADOC Reg 5-11 - U.S. Army Training and Doctrine Command (TRADOC) Models and Simulations (M&S)
TRADOC Reg 11-8 - TRADOC Studies and Analyses
TRADOC Reg 25-32 - TRADOC Doctrinal Literature Master Plan
TRADOC Reg 71-12 - TRADOC System Management
TRADOC Reg 71-17 - Organizational Design, Unit Reference Sheets (URS), and Automated Unit Reference Sheets (AURS)

TRADOC Reg 350-32 - The TRADOC Training Effectiveness Analysis (TEA) System
TRADOC Reg 350-70 - Training Development Management, Processes, and Products
TRADOC Reg 381-1 - Threat Management
TRADOC Reg 385-2 - TRADOC Safety Program

Section II
Related Publications

AR 1-1 - Planning, Programming, Budgeting, and Execution System
AR 5-22 - The Army Proponent System
AR 11-40 - Functional Area Assessment (FAA)
AR 25-1 - The Army Information Resources Management Program
AR 25-30 - The Army Integrated Publishing and Printing Program
AR 34-1 - International Military Rationalization, Standardization and Interoperability
AR 37-100 - Account/Code Structure
AR 40-10 - Health Hazard Assessment Program in Support of the Army Materiel Acquisition Decision Process
AR 40-61 - Medical Logistics Policies and Procedures
AR 70-38 - Research, Development, Test, and Evaluation of Materiel for Extreme Climatic Conditions
AR 310-50 - Authorized Abbreviations, Brevity Codes, and Acronyms
AR 350-35 - Army Modernization Training
AR 380-19 - Information Systems Security
AR 602-1 - Human Factors Engineering Program
AR 602-2 - Manpower and Personnel Integration (MANPRINT) in the Systems Acquisition Process
AR 700-127 - Integrated Logistics Support
AR 700-129 - Management and Execution of Integrated Logistics Support (ILS) Program for Multiservice Acquisitions
DA Pam 25-40 - Administrative Publications: Action Officer Guide
DA Pam 73-2 - Test and Evaluation Master Plan Procedures and Guidelines
DA Pam 73-3 - Critical Operational Issues and Criteria (COIC Procedures and Guidelines)
DOD 5000.3-M-4 - Joint Test and Evaluation Procedures Manual
FM 100-5 - Operations
FM 100-11 - Force Integration
FM 100-14 - Risk Management
Joint Pub 1-02 - DOD Dictionary of Military and Associated Terms
TRADOC Pam 25-34 - Desk Guide to Doctrine Writing
TRADOC Pam 25-35 - Desk Guide to Doctrine Management
TRADOC Reg 25-30 - Preparation, Production, and Processing of Army wide Doctrinal and Training Literature (ADTL)
TRADOC Reg 25-31 - TRADOC Army wide Doctrinal and Training Literature Program
TRADOC Reg 25-35 - Preparing and Publishing United States Army Training and Doctrine Command (TRADOC) Administrative Publications
TRADOC Reg 71-4 - TRADOC Standard Scenarios for Combat Developments

Definitions

Battle Labs	A battle lab is a TRADOC organization normally co-located school. Its mission is to become an "engine of change" to develop, refine and integrate future operational concepts, capabilities and architectures within the proponent's Objective Force developmental mission. Battle labs employ the Requirements Generation System (RGS) to produce sets of requirements that result in organizations containing force characteristics and operational capabilities described in Objective Force concepts. Battle labs are organized to help introduce new concepts and material across the currently fielded force's battlefield operating systems and to achieve integrated DOTMLPF solutions for Objective Force units. A battle lab will team with other TRADOC battle labs in order to better address Objective Force issues.
Future Operational Capabilities (FOC)	FOC are structured statements of desired operational capability that establish the foundation upon which Army requirements are based to achieve the progressive ideas articulated in HQ TRADOC-approved concepts. They are intended to apply to tomorrow's Army on the ever changing battlefield, and should be expressed as objectives with clear, quantifiable and measurable goals. The two types of FOC's are integrated and proponent/branch. Examination of potential solutions to support an FOC must span all DTLOMS domains, and should be considered in order, D-T-L-O-M-S. Collectively, the results of these examinations define the strategy for how the propend envisions achieving the capability over time. All warfighting requirements have a linkage to the capstone concept through one or more FOC's. *DA PAM 70-3*
Horizontal Technology integration	Provides for the application of common technology across multiple systems or items to improve the warfighting capability of the force. It is a modernization requirements and acquisition process in which technology is simultaneously integrated into different weapon systems. *DA PAM 70-3*